

DHS Science and Technology Directorate

Symbology Initiative

Why it's needed

The Science and Technology Directorate's First Responders Group (FRG) has partnered with the Federal Emergency Management Agency (FEMA) to establish a common and scalable approach to incident response operations across the Nation. Many of the National Incident Management System principles codify practices to ensure interoperability and compatibility for both technology and business practices. However, the current state of Incident Command System geospatial doctrine does not establish a standard methodology for representing information visually, a common practice in state geographic information systems (GIS). As a result, many jurisdictions have established their own representative symbols, resulting in a large number of disparate symbol sets in use. Without a common symbol set, multi-discipline and multi-jurisdictional sharing of geospatial information is problematic.

How it works

The symbology initiative seeks to develop a common, national symbol set and/or symbol characteristics that first responder agencies across the Nation may use as they plan for and respond to incidents affecting their own jurisdictions and/or requiring multi-jurisdictional response. This effort will allow first responder agencies to seamlessly interact with one another while understanding what mapping symbols represent, even though the agency may not normally operate in the jurisdiction where the incident is occurring.



FRG and FEMA have partnered with the National Alliance for Public Safety GIS Foundation (NAPSG) to leverage their extensive network of practitioners and the symbol set research they have conducted. A working group established by NAPSG provided recommendations regarding methodology for developing point symbols that incorporated existing Department of Transportation and National Fire Protection Association symbols. A standardized framework (i.e., "wrapper") for symbols (e.g., vertical diamond for hazards, rectangles for task groups, etc.) was also recommended.

The working group believes that the use of these standardized wrappers would provide quick recognition by non-local departments that may be assisting during the incident, while providing the flexibility for departments to develop specialized symbols to meet their unique operational scenarios.

The value

The symbology initiative has been developed in partnership with the first responder community. Through outreach and working group meetings with leading GIS and operational stakeholders such as NAPSG, first responders who develop and use mapping symbology in their daily operations have been involved in the initiative's strategy and development. The initiative is focused on the following objectives:

Improved Understanding and Use of Geo-Spatial Data: The visual display of information is crucial for first responders in incident planning and response. It is critical that responders have symbol sets that are tailored to meet their unique requirements while at the same time allowing them to assist other jurisdictions should mutual aid circumstances arise. Common symbol features will allow first responders from disparate jurisdictions to seamlessly interact with one another to make operational decisions.

National Consensus and Implementation: Through interactions with first responder stakeholders, the initiative will seek to come to consensus on common symbol characteristics and features that jurisdictions across the Nation may employ in their daily operations. Finding commonalities among symbol requirements will allow greater acceptance and implementation on a national scale.

Symbol Flexibility and Jurisdiction Independence: Given the sheer number of symbols currently in use by agencies across the Nation, it is unrealistic to expect each agency to use the exact same symbol for specific elements within an incident. The key that this initiative is trying to implement is finding those symbol requirements which are common and jurisdictions will understand no matter where they are operating, while allowing them to maintain their own graphic depictions.

The future of the symbology initiative

The symbology initiative envisions a future where agencies use geospatial and hand-drawn map symbol sets with common features promoting seamless unity and understanding among disparate jurisdictions in operational scenarios. Final recommendations for use will be released in a guidance document released by FEMA. If the point symbols recommendations are accepted by the first responder community, FRG, FEMA, and NAPSG will determine if they will continue this process to develop further recommendations for symbols.



**Homeland
Security**

Science and Technology

To learn more about the Symbology Initiative, contact
SandTFRG@dhs.gov

2014-07-09